

INFORMATION REPORT INFORMATION REPORT

CENTRAL INTELLIGENCE AGENCY

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Activities at Kuybyshev

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PART II - REPORT

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(i) Activities at KUIBYSHEV

During 1946-7 [] group continued the development of the Ju.004 turbo-jet which had been begun at DESSAU. For this project components

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Attachment

brought from DESSAU were used wherever possible although some parts were manufactured at KUYBYSHEV. At the same time the Ju.012 turbo-jet was being run on the test stand and this engine was improved at KUYBYSHEV to deliver 3,000 kg thrust. [] by 1949 the Ju.012 was considered ready for series production and all available engines and components, together with jigs, tools and working drawings, were sent by the Russian to KAZAN. [] the KAZAN factory had also undertaken series production of the BMW.003 and the NENE turbo-jets.

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Development work began on the Ju.022 turbo-prop in 1949 and [] on the installation of an airscrew test stand at KUYBYSHEV. [] the KUYBYSHEV test stand as somewhat rough and ready by Western standards, [] the testing schedule for the Ju.022 was carried out efficiently and the equipment was still in good working order in 1952. [] working drawings of the 022 airscrew test stand which had facilities for simultaneous torque and thrust measurement. [] were to be sent to LENINGRAD where a Russian research establishment was carrying out parallel work on the Ju.022. []

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the engine had been flight tested during 1952. A large aircraft, known to the Germans at ZAVOD II as a "Russian B-29" was reputedly used as a flying test bed. In summer several 022 engines were inhibited and crated for despatch elsewhere and it was generally assumed that these engines were used for the flight tests.

[] over 40 complete Ju.022 engines were assembled at KUYBYSHEV [] it was difficult for anyone to form an overall picture of the activities at ZAVOD II because of strict security precautions. Though the engine failed to complete its official acceptance test because of reduction gear failure, [] the test was successfully undertaken elsewhere.

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[] design a single-rotor water brake with a nominal capacity of 25,000 h.p. for the testing of the "K" turbo-prop. At least twelve copies of the working drawings for this water brake (800 mm dia.) were completed and [] these were sent to TsIAM. Early in 1952 the "K" engine was set up on the water brake and ran satisfactorily though not [] at full power. [] the "K" delivered 10,000 s.h.p. at this phase of its development.

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When the testing of the "K" was first discussed the Russians had plans for building a permanent airscrew test stand equipped for simultaneous torque and thrust measurement. However, this never materialised and a simple installation was finally built, torque and thrust measurements being obtained from the water brake tests. The data gathered was then checked against the specific fuel consumption figures recorded on the airscrew test stand. The Russians also talked of building an altitude test cell for the Type "K" engine at KUYBYSHEV []

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[] the "K" was a turbo-prop engine with a 14-stage axial compressor and a 5-stage turbine designed for high altitudes operation. In November 1953 [] the engine had run successfully on the water brake and airscrew testing was under way.

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[] specific fuel consumption figures of the order of 245 g./h.p./hr. had been recorded. Apparently trouble was experienced initially in starting the "K" which was equipped with a gas turbo-starter similar to that used on the 022. Pressure relief valves were fitted to the

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compressor but even with these the engine could not be accelerated up to self-sustaining r.p.m. This trouble was later overcome by modifying the inlet stator blades.

The gas turbo-starter used was a robust unit with a radial impeller delivering approximately 100 h.p.

"teething troubles" were experienced with the compressor of the "K" engine and that turbine blades were showing fissures after a few hours' running. the testing of the "K" was still in its initial phase in the autumn of 1953 the main purpose of the development work undertaken at that time was to check the specific fuel consumption and the reliability of the components.

(ii) "Cooling off" period at SAVELOVO

From December, 1953, until the end of June, 1954, the KUYBYSHEV group worked on the design of a power unit for the "152 Project", a medium range jet air liner to be manufactured in the DDR. the specification called for an engine with a mass flow of 30 kg./sec., and a thrust rating of 3,000 kg. Wherever possible, 022 components were to be incorporated and the general layout of the engine was described as being "in the JUNKERS' tradition". The design study finally prepared at SAVELOVO envisaged a 12-stage compressor and a 3-stage turbine mounted on a single shaft, using the can-annular combustion chamber lay-out of the 022. Thrust augmentation by after-burning was considered.

PART III - PERSONALITIES

KUZNETSOV

- Chief Designer and Works Manager.

OVCHAROV

- OVCHAROV was a member of the Soviet Commission sent to DESSAU in 1946 and he later acted for a short time as KUZNETSOV's deputy at ZAVOD II (perhaps in 1948).

SERGEYEV

- chief test stand engineer at ZAVOD II.

SEMYONOV

- SEMYONOV was a member of the Russian Commission in DESSAU in 1946 and later joined the development team at ZAVOD II. His field was aero engine testing.

SININ

- SININ

he specialised in zero engine testing.

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